



MAKING BRICKS WITHOUT STRAW:

**AN ANALYSIS OF ACHIEVEMENT PATTERNS AND FISCAL INEQUITY AND INADEQUACY
IN NEBRASKA SCHOOL SYSTEMS**

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Researchers, policymakers, taxpayers, and others have wondered whether “money matters” in the academic achievement of public school students—in other words, do the schools and districts that receive the most (in terms of financial resources) produce the most (in terms of measurable student achievement)? This issue is particularly pressing at the district level of performance, because districts are the recipients of state aid and the unit of analysis for determining whether state funding systems are adequate and/or equitable.

In an effort to explore whether “money matters” in Nebraska, this study analyzes the relationship between student achievement and fiscal resources among school systems in Nebraska. Moreover, in considering these relationships, it is important to recognize that the cost of providing an adequate education varies with the socio-economic characteristics of the district, and that other factors may affect the relationship between achievement patterns and fiscal resources—i.e., districts that serve higher percentages of students who face nonacademic barriers to high achievement (poverty, limited English language skills, etc.) require additional financial resources to “level the playing field” for their students with regard to students who do not face similar barriers. With that in mind, the study also includes socioeconomic characteristics of school systems and their communities in the analysis.

Findings suggest that the distribution of financial resources throughout the state does in fact mirror the distribution of student achievement, and in ways that place school systems serving the most challenged student populations in the unenviable position of attempting to do more for their students with significantly fewer resources available. The resources they are provided are inadequate to the challenge they face and inequitable compared to the resources received by districts facing fewer challenges to achievement.

For this analysis, we computed a composite achievement index for each system by aggregating student-weighted performance on three consecutive years (2000-2001, 2001-2002, and 2003-2003) of nationally-normed reading and math assessments at grades 3-4, 7-8, and 10-12, along with grade 4 and grade 8 writing exams. The index reported for each system reflects the total percentage of students scoring above the national averages on math or reading, and scoring proficient on writing for that three year period. The research included all districts that were operational in the school year 2002-2003—a total of 519. To achieve the desired system level data, Class I district information was distributed to their affiliate Class II, III, IV, V, or VI district following procedures established by the Nebraska Department of Education for the purpose of calculating state aid. This resulted in a total of 261 systems for analysis. Five of those 261 systems (Arthur County, Arcadia, Thedford, Santee, and Boone Central) were excluded due to the unavailability of achievement data, leaving 256 systems for analysis. All data used in this study were provided by the Nebraska Department of Education and the U.S. Census Bureau and are available to the general public.

We first divided the 256 systems into two groups: those scoring at or above the state average on the composite achievement measure (high-achieving), and those scoring below state average (low-achieving). We then divided both the high-achieving and low-achieving groups into student-weighted quartiles (i.e., the systems serving approximately 25% of the total student population of the low-achieving systems, the next 25%, and so on). To establish quartiles that serve roughly equal numbers of students, it was necessary to exclude Omaha, Lincoln, and Millard from their respective quartiles because each has so many students that they squeeze nearly all other systems at similar achievement levels out of their quartiles (e.g., Omaha has more than twice as many students as all other lowest-achieving systems combined; Millard has nearly as many students as all other highest-achieving systems combined). The inclusion of the big three systems in their respective quartiles--based on their achievement scores, Millard would rank in the highest quartile, Lincoln in the second highest, and Omaha in the lowest--would nullify the impact of other systems and distort the results of the analyses.

The exclusion of the big three systems was necessary only for the individual quartile comparisons, however. When quartiles are combined for the purpose of comparing the combined group (e.g., "all systems scoring above the state achievement mean") with the lowest achieving quartile, data for Lincoln and Millard are both reintroduced into the high achieving data because their distorting effect is minimal in these larger categories. Omaha data, however, is never reintroduced because it is in the lowest achieving quartile and the lowest-achieving quartile is always compared alone against others and Omaha's large numbers would distort the results.

Lowest achieving systems and all other low achieving systems

When we consider the systems from the lowest achieving quartile in comparison with all other systems below the state average, the picture that emerges is one of schools that face greater demographic challenges with more limited fiscal and instructional resources brought about as a result of their smaller local property tax base (see tables 1 and 2).

Table 1. Demographic characteristics of lowest achieving systems and all other low achieving systems

System	ADM	Percent Hispanic	Percent American Indian	Percent ELL	Percent Free & Reduced lunch	Mobility Rate	Percent Poverty/ Near Poverty	Percent children in poverty	Percent adults with HS diploma	Median Household income
Lowest achieving (n=23)	18,488	30%	7%	14%	48%	21%	43%	17%	68%	\$35,171
Others below state average (n=75)	59,522	10%	1%	4%	31%	12%	32%	12%	83%	\$38,189

* n = number of districts

**Table 2. Wealth & resource characteristics of lowest achieving systems
and all other low achieving systems**

System	Assessed valuation per pupil (AWFS) [†]	Total income tax rebate per pupil (AWFS)	Local receipts funding per pupil (AWFS)	Total General Fund Receipts per pupil (AWFS)	Regular instructional expenditures [‡] per pupil (AWFS)	Adjusted total current expenditures per pupil (AWFS)	Average Teacher salary
lowest achieving (n=23)	\$217,322	\$130	\$2,277	\$6,006	\$3,058	\$5,373	\$35,341
others below state average (n=75)	\$287,831	\$191	\$2,985	\$6,142	\$3,164	\$5,826	\$37,330

In comparison with the other 75 systems with below average achievement, the 23 lowest achieving systems have:

- three times the percentage of Hispanic students;
- seven times the percentage of American Indian students;
- more than three times higher rate of ELL students;
- a 50 % higher rate of free and reduced lunch;
- a 75 % higher rate of student mobility;
- more than one-third higher rate of households with poverty or near poverty family income;
- a 42% higher rate of school-age children living in poverty;
- 18% fewer adults with a high school diploma; and
- a median household income that is more than \$3,000 lower.

They face these challenging conditions with:

- \$70,509 per pupil less in assessed property valuation;
- 32% lower total income tax rebate per pupil;
- 24% less in local receipts funding per pupil; and
- an average teacher salary that is \$1,989 lower.

Lowest achieving systems and all other systems

When we consider the systems from the lowest achieving quartile in comparison with all other systems, the contrast between the lowest achieving group and other systems is even more pronounced (see tables 3 and 4).

[†] Adjusted weighted formula students

[‡] Regular instructional expenditures refers to general fund programs that directly assist in the instructional process for regular education students. It does not include English Language Learner (ELL) Programs or Special Education, nor does it include any administration or guidance counseling services.

Table 3. Demographic characteristics of lowest achieving systems and all other systems

System	ADM	Percent Hispanic	Percent American Indian	Percent ELL	Percent Free & Reduced lunch	Mobility Rate	Percent Poverty/Near Poverty	Percent children in poverty	Percent adults with HS diploma	Median Household income
lowest achieving (n=23)	18,488	30%	7%	14%	48%	21%	43%	17%	68%	\$35,171
all other systems (n=232)	214,794	6%	1%	3%	27%	12%	29%	10%	88%	\$41,092

Table 4. Wealth & resource characteristics of lowest achieving systems and all other systems

System	Assessed valuation per pupil (AWFS)	Total income tax rebate per pupil (AWFS)	Local receipts funding per pupil (AWFS)	Total General Fund Receipts per pupil (AWFS)	Regular instructional expenditures per pupil (AWFS)	Adjusted total current expenditures per pupil (AWFS)	Average Teacher salary
lowest achieving (n=23)	\$217,322	\$130	\$2,277	\$6,006	\$3,058	\$5,373	\$35,341
all other systems (n=232)	\$313,069	\$251	\$3,286	\$6,318	\$3,186	\$5,907	\$37,750

In comparison with all other 232 system in the state, the 23 lowest achieving systems have:

- five times the percentage of Hispanic students;
- seven times the percentage of American Indian students;
- nearly five times higher rate of ELL students;
- 67% higher rate of free and reduced lunch;
- 75% higher mobility rate;
- nearly 50% higher rate of households with poverty or near poverty median income;
- 70% higher rate of school-age children living in poverty;
- 20% fewer adults with a high school diploma; and
- a median household income that is \$5,921 lower.

They face these challenging conditions with:

- \$95,747 per pupil less in assessed property valuation;
- about one-half as much total income tax rebate per pupil;
- nearly one-third less in local receipts funding per pupil
- \$534 per pupil lower total current expenditures; and
- an average teacher salary that is \$2,409 lower.

Lowest achieving systems and all high-achieving systems

We next considered the systems from the lowest achieving quartile in comparison with all systems above the state average, a group that includes both Lincoln and Millard (see tables 5 and 6).

Table 5. Demographic characteristics of lowest achieving systems and all high achieving systems

System	ADM	Percent Hispanic	Percent American Indian	Percent ELL	Percent Free & Reduced lunch	Mobility Rate	Percent Poverty/Near Poverty	Percent children in poverty	Percent adults with HS diploma	Median Household income
lowest achieving (n=23)	18,488	30%	7%	14%	48%	21%	43%	17%	68%	\$35,171
all above state average (n= 157)	155,272	3%	1%	3%	25%	12%	27%	9%	89%	\$42,162

Table 6. Wealth & resource characteristics of lowest achieving systems and all high achieving systems

System	Assessed valuation per pupil (AWFS)	Total income tax rebate per pupil (AWFS)	Local receipts funding per pupil (AWFS)	Total General Fund Receipts per pupil (AWFS)	Regular instructional expenditures per pupil (AWFS)	Adjusted total current expenditures per pupil (AWFS)	Average Teacher salary
lowest achieving (n=23)	\$217,322	\$130	\$2,277	\$6,006	\$3,058	\$5,373	\$35,341
all above state average (n= 157)	\$322,880	\$274	\$3,403	\$6,386	\$3,195	\$5,938	\$37,911

In comparison with all 157 systems with above average scores, the 23 lowest achieving systems have:

- ten times the percentage of Hispanic students;
- seven times the percentage of American Indian students;
- nearly five times higher rate of ELL students;
- nearly twice the rate of free and reduced lunch;
- 75% higher mobility rate;
- 16% more households living in poverty or near poverty;
- nearly twice the rate of school-age children living in poverty;
- 21% fewer adults with a high school diploma; and
- a median household income that is nearly \$7,000 lower.

They face these challenging conditions with:

- \$105,558 (one-third) per pupil less in assessed property valuation;
- less than half the total income tax rebate per pupil;
- one-third less in local receipts funding per pupil;

- \$380 per pupil less in total general fund receipts;
- \$565 per pupil lower total current expenditures;
- \$137 per pupil lower total regular instructional expenditures; and
- an average teacher salary that is \$2,570 lower.

Lowest achieving systems and highest achieving systems

The contrasts in educational opportunities encountered by Nebraska's children are especially apparent in a comparison of the systems from the lowest achieving quartile with the systems from the highest achieving 51 systems in the state (see tables 7 and 8).

Table 7. Demographic characteristics of lowest achieving systems and highest achieving systems

System	ADM	Percent Hispanic	Percent American Indian	Percent ELL	Percent Free & Reduced lunch	Mobility Rate	Percent Poverty/Near Poverty	Percent children in poverty	Percent adults with HS diploma	Median Household income
lowest achieving (n=23)	18,488	30%	7%	14%	48%	21%	43%	17%	68%	\$35,171
highest achieving (n= 51)	26,191	2%	1%	1%	25%	10%	28%	10%	88%	\$42,739

Table 8. Wealth & resource characteristics of lowest achieving systems and highest achieving systems

System	Assessed valuation per pupil (AWFS)	Total income tax rebate per pupil (AWFS)	Local receipts funding per pupil (AWFS)	Total General Fund Receipts per pupil (AWFS)	Regular instructional expenditures per pupil (AWFS)	Adjusted total current expenditures per pupil (AWFS)	Average Teacher salary
lowest achieving (n=23)	\$217,322	\$130	\$2,277	\$6,006	\$3,058	\$5,373	\$35,341
highest achieving (n= 51)	\$416,015	\$432	\$4,226	\$6,643	\$3,508	\$6,435	\$35,497

In comparison with the 51 highest achieving systems, the 23 lowest achieving systems have:

- fifteen times the percentage of Hispanic students;
- seven times the percentage of American Indian students;
- fourteen times higher rate of ELL students;
- nearly twice the rate of free and reduced lunch;
- more than double the student mobility rate;
- 15% more households living in poverty or near poverty;
- 70% higher rate of school-age children living in poverty;
- 20% fewer adults with a high school diploma; and
- a median household income that is more than \$7,500 lower.

They face these challenging conditions with:

- \$198,693 (48%) per pupil less in assessed property valuation;
- \$302 (70%) less total income tax rebate per pupil;
- \$1,949 (46%) less in local receipts funding per pupil;
- \$637 per pupil less total general fund receipts;
- \$1,062 per pupil lower total current expenditures; and
- \$450 per pupil lower total regular instructional expenditures.

Conclusions

The pattern that emerges from the above series of comparisons is unmistakable. The school systems that face the greatest challenges to high academic achievement are also the ones that have the most limited resources with which to address those challenges; those systems that face the fewest challenges are the ones with the most resources. In short, it is a system where inequity in the distribution of financial resources mirrors inequity in the distribution of student achievement. At each successive level of comparison, the lowest achieving systems in Nebraska are at a greater demographic and fiscal disadvantage with increasingly successful systems.

The pattern is one of palpable and egregious inequity. Districts that serve higher percentages of students who are poor or have limited English language skills require additional resources to reach the same level of achievement as other students. But the pattern in Nebraska is exactly the opposite—the greater the challenge, the fewer the resources. Clearly, Nebraska needs to provide these districts with more resources if they are to overcome the challenges they face and achieve at levels that other districts with fewer challenges are able to achieve. If Nebraska wants to improve achievement—as it says it does—it needs to provide more funding to the schools that face the most difficult challenges.

Two graphs accompanying this report (see figure 1 and figure 2) portray this pattern visually. An additional table (see table 9) collectively presents the data used in the above comparisons.

Figure 1: Composite Achievement and System Characteristics in Nebraska

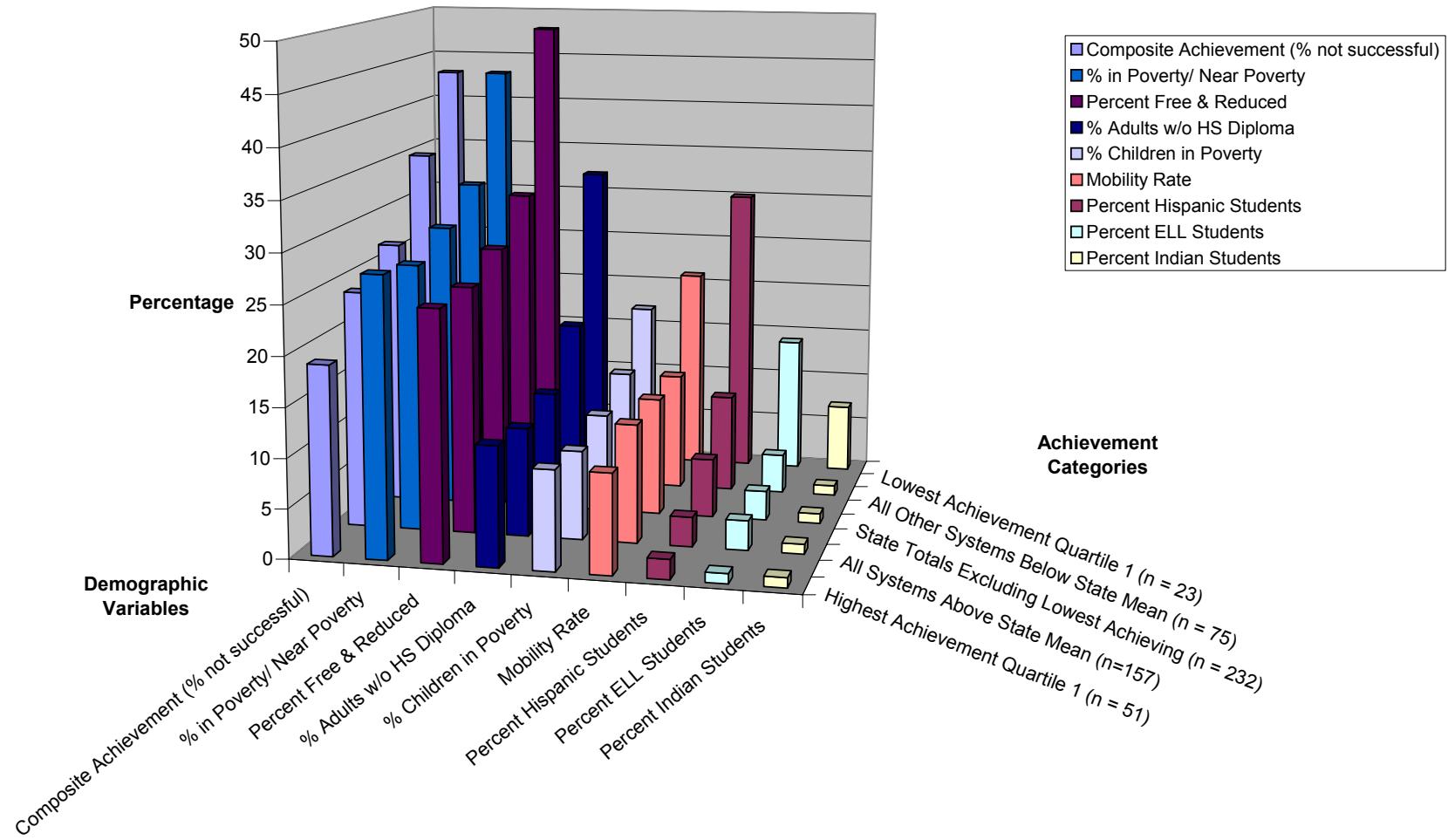


Figure 2: Composite Achievement and System Wealth in Nebraska

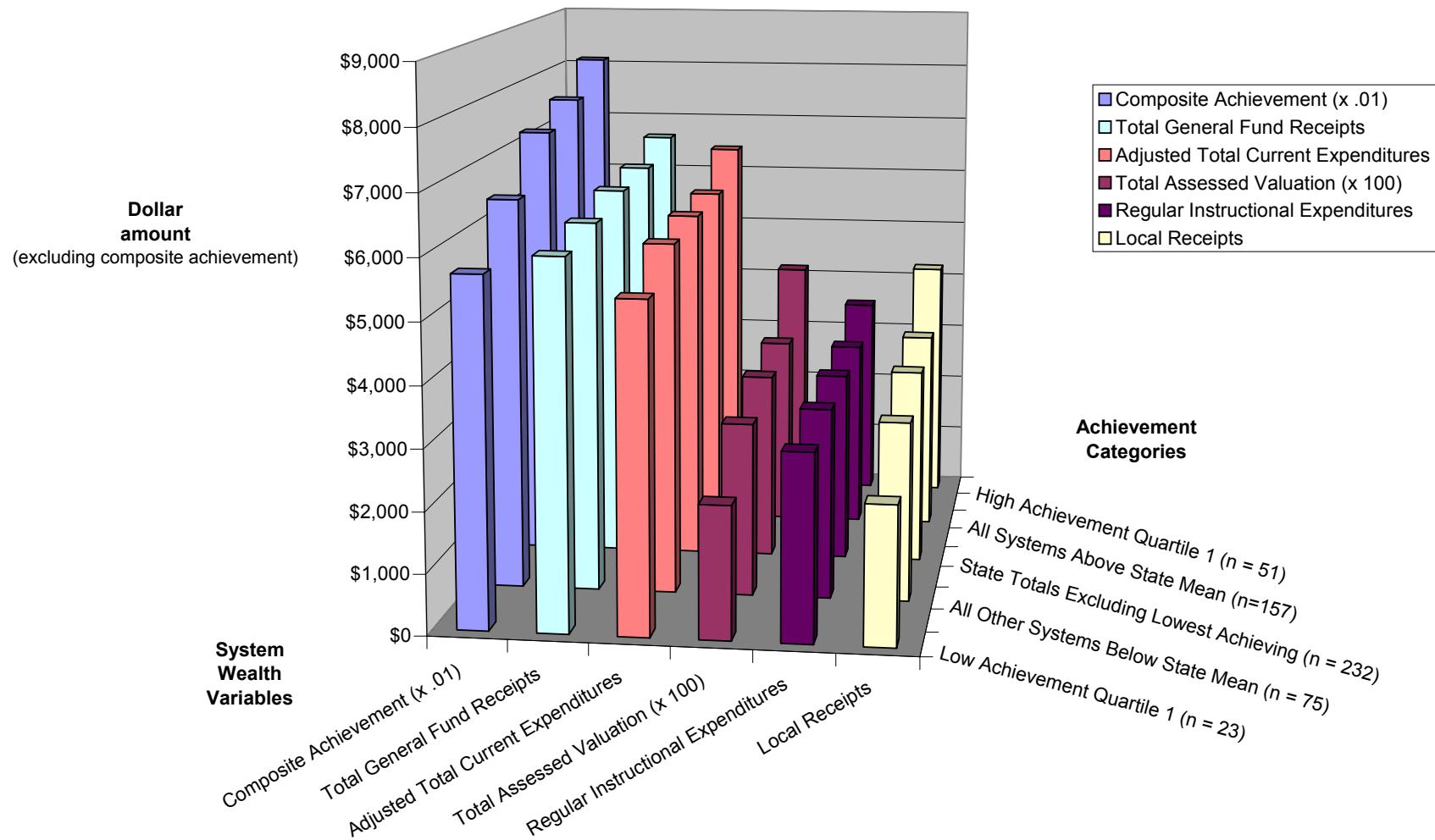


Table 9: All Data

	ADM	Percent Hispanic students	Percent American Indian/ Alaskan Native students	Percent ELL students	Percent F/R students	mobility rate	% population below 20% of poverty line	% school-age children below poverty line	% HS diploma or higher, ages 18-34	Median household income	2001-2002 assessed valuation per ADM	per option funding + income tax rebate per AWFS	Local receipts per AWFS	Total General Fund receipts per AWFS	Reg Ed Instructional Expenditures per AWFS	Adjusted Total Current Expenditures per AWFS	composite achievement	average teacher salary
Low Achievement Quartile 1 (n=23) per system	18488 804	30% 7%	7% ###	48% 21%	43% 17%	68% 83%	\$35,171 \$217,322	\$130 \$2,277	\$6,006 \$3,058	\$3,058 \$5,373	\$5,373 59	\$35,341 \$35,341						
Others Below State Mean (n=75) per system	59522 794	10% 1%	1% 4%	31% 12%	32% 12%	12% 83%	\$38,189 \$287,831	\$191 \$2,985	\$6,142 \$6,142	\$3,164 \$3,164	\$5,826 65	\$37,330 \$37,330						
State Totals, excl. lowest achieving (n=232) per system	214794 926	6% 1%	1% 3%	27% 12%	29% 27%	10% 9%	88% 89%	\$41,092 \$313,069	\$251 \$3,286	\$6,318 \$6,318	\$3,186 \$3,186	\$5,907 73	\$37,750 \$37,750					
Above State Mean—all (n=157) per system	155272 989	3% 1%	1% 3%	25% 12%	12% 27%	9% 9%	89% 89%	\$42,162 \$322,880	\$274 \$3,403	\$6,386 \$6,386	\$3,195 \$3,195	\$5,938 76	\$37,911 \$37,911					
High Achievement Quartile 1 (n=51) per system	26191 514	2% 1%	1% 1%	25% 10%	28% 28%	10% 88%	\$42,739 \$416,015	\$432 \$4,226	\$6,643 \$6,643	\$3,508 \$3,508	\$6,435 81	\$35,497 \$35,497						

Notes:

1. Composite achievement is the student-weighted aggregate performance on 3 consecutive years (00/01-02/03) of nationally-normed math & reading tests (% above national average) and the writing exam at grades 4 and 8 (% proficient).
2. Low Achievement Quartile 1 is lowest 25% (student-weighted) in composite achievement for all systems below state mean, excluding Omaha
3. High Achievement Quartile 4 is the highest 25% (student weighted) in composite achievement for all systems above state mean, excluding Lincoln & Millard